

last the authority to whom all referred in matters connected with the restoration of that noble fabric.

He designed the well-known "Romsey Observatory"; two or three equatorial stands for reflecting and refracting telescopes, one of which—a 12½-inch reflector—received a silver medal at the Paris Exhibition, 1878. His "dynamometer" for ascertaining the power of eyepieces is well known, though not so much so his latest proposal—of only last year—for standardising eyepieces. Many telescopes were constructed by him of different apertures—the specula, the writer believes, excepted—including a reflector of 18 inches, and weighing nearly two tons, for the late Rev. H. Cooper-Key; a 10.5-inch equatorial for the late Professor Pritchard of Oxford, and a stand for that "keen observer of the starry host" and author of *Celestial Objects*, the Rev. Thomas Webb, of Hardwick Vicarage, Hereford. And of work in other directions, "it is a pleasure," said he, "to reflect that I have enabled many a brother priest of limited means to rejoice in the possession of an equatorial telescope of from nine to eighteen inches aperture, and thus to pursue the most noble of the physical sciences, and to sing intelligently with the Psalmist, 'Coeli enarrant gloriam Dei.'"

In the autumn of 1898 Mr. Berthon finished an equatorial of sixteen and a half inches aperture (speculum by Sir Howard Grubb) and nearly ten feet focal length, together with an observatory, constructed at the Boat Works, Romsey, for a gentleman at Johannesburg.

Mr. Berthon was elected a Fellow of this Society 1865 January 8, and retired in 1880. He had one paper in the *Monthly Notices*—"On the Equestrian Equatorial" (*M.N.* vol. xxxv. p. 106). It was read at the meeting 1874 December 11, when he exhibited the instrument. He was re-elected 1899 May 12, and many will remember the ovation he received when, on his re-admission 1899 June 9, he exhibited two telescopes of his construction, together with a simple device for dividing telescope circles.

Mr. Berthon died at his residence, St. Margaret's, Cupernham, Romsey, 1899 October 28.

[For the above particulars the Council is indebted to Mr. J. J. Hall, of Slough.]

JAMES CARPENTER was born at Greenwich in the year 1840. He entered the Magnetical and Meteorological Department of the Royal Observatory, Greenwich, as computer, in the year 1854, being after a time transferred in a similar capacity to the Astronomical Department, in which, on the retirement of Mr. H. Breen, in 1859, he was appointed assistant. At this time the new South East Equatorial was approaching completion, and in 1861 it was placed under his special charge. He was a good draughtsman, and, in addition to his ordinary astronomical duties, made from time to time drawings of the planets *Mars*, *Jupiter*,

and *Saturn*, one also of the nebula in Orion, some of the lunar crater *Linné* (then suspected of having changed its form), as well as drawings of various comets, including some excellent pictures of Donati's comet (1858) and of the Comet II., 1861 (the great comet of the summer of that year). In the year 1863 he measured the positions of lines in the spectra of numerous stars with the instrument designed by Sir George Airy. He had the continuous charge of the library and manuscripts of the Observatory, and prepared an entirely new catalogue, on the slip system, of the books of the former. He was elected a Fellow of the Society 1867 February 8. In 1870, at the request of Sir William Huggins, and with the consent of the Astronomer Royal and the Admiralty, he went to Oran, in Algeria, to observe the total solar eclipse of December 22 of that year, but the circumstances of weather were unfortunately unfavourable. In 1871 he carried out, under the direction of the Astronomer Royal, a series of experiments for determining the distribution of magnetism in bar magnets and in galvanic coils, and in 1872 was deputed, in conjunction with Captain Tupman, R.M.A., to make an examination into the magnetic condition of the Britannia and Conway tubular iron bridges, the results of these experiments being contained in two papers contributed by Sir George Airy to the Royal Society in the year 1872. In the same year Mr. Carpenter resigned his position at the Royal Observatory to enter the service of John Penn & Sons, marine engineers. He had previously married Ellen Penn, the daughter of the late Mr. Thomas Penn of the same firm. After holding the position mentioned for eighteen years, he was led to retire therefrom on account of the ill health of his wife, who died soon afterwards at Hastings. Mr. Carpenter survived her for nine years, during the later portion of which he suffered from an affection of the heart, from which he died, 1899 October 17, at the age of fifty-nine, at Grove House, Lewisham, leaving no family.

It should be mentioned that Mr. Carpenter worked as collaborator with Mr. James Nasmyth, the engineer, in the preparation of their joint work on "*The Moon*," of which several editions were issued. The authors remark that much labour had been bestowed upon the topography of the Moon, and sufficient written for those who desire acquaintance with the intricate movements of the Moon in space, but that little attention had been given to the Moon's physiography, to the causes of the features, broad and detailed, that our satellite presents. From carefully made drawings of many different portions of the Moon's surface, again and again revised and compared with the actual objects, the authors constructed models which, when placed in the Sun's rays so as faithfully to reproduce the lunar effects of light and shadow, were photographed, thus obtaining pictures representing in a striking manner the details of the lunar surface. In the accompanying text these features of the Moon are described, and the views of the authors as to their formation explained.

Mr. Carpenter was a ready writer, and contributed numerous articles on a variety of subjects, mainly scientific, to the current periodicals of the time; his expositions of phenomena were couched in a style that was not only in itself attractive, but also conveyed to the reader such accurate information as would enable him clearly to understand the various matters treated. He had also a very practical turn of mind, was a good mechanic, had artistic tastes and musical ability, and was moreover an excellent photographer, and in the later years of his life he gave great assistance, in conjunction with Dr. Moore, in the installation and practical application of the Röntgen ray method to surgical purposes at the Miller Hospital, Greenwich, of which Institution he was a Member of Committee.

W. E.

SAMUEL COOKE was born 1844 May 22. He was educated at Trinity College, Dublin; and, having completed the course in the School of Engineering, he took his degree in 1868, receiving two special certificates in Mechanical and Physical Science, and in Chemistry, Geology, and Mining. Immediately after taking his degree, he was appointed to be Professor of Chemistry and Geology in the Civil Engineering College at Poona, University of Bombay. His father, Mr. Theodore Cooke, was at the time Principal of the College; and on his retirement in 1893, after holding the office of Principal for twenty-eight years, the son, Mr. Samuel Cooke, was appointed Principal of the College of Science, as it was then called, in his stead. Mr. Cooke was the author of several text-books, which have run through many editions; amongst others may be mentioned his *First Principles of Chemistry* (six editions), *Students' Practical Chemistry* (three editions), *First Principles of Astronomy* (five editions), *The Foundations of Scientific Agriculture*, published in 1897.

He was elected a Fellow of this Society in 1898 February 11.

NATHANIEL EVERETT GREEN was born at Bristol 1823 August 21. He was the third son of Benjamin Holder Green, of that city, and bore his mother's maiden name. She was Elizabeth Everett, of Crockerton, Wilts. He was educated chiefly by his uncle, the Rev. C. Everett, and in 1840 started life in a merchant's office in Liverpool. Finding a commercial life uncongenial to him, and having a great taste for drawing, he decided to adopt art as his profession, and came to London in 1844, entering the Royal Academy as a student in December of that year. Here he worked side by side with Leighton, Millais, and Rossetti. In 1847 he married Elizabeth Goold, of Cork, and after living for about a year in the west of London he eventually settled in St. John's Wood, where he resided for forty-nine years, attracted to the neighbourhood by its quiet retirement and its favourable surroundings for the pursuit of his artistic and astronomical studies. He frequently exhibited his work, both in oil and water colours, at the Royal Academy and other galleries, but the